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## ASSIGNMENT BOOKLET

3216 MATHEMATICS 33 UNIT 1

**FOR STUDENT USE ONLY**

Date Module Submitted

(If label is missing or incorrect)

File Number

### Time Spent on Module

Module Number \_\_\_\_\_

**FOR SCHOOL USE ONLY**

Assigned

Teacher: \_\_\_\_\_

Module Grading: \_\_\_\_\_

Graded by: \_\_\_\_\_

Date Module Received:

### Student's Questions and Comments

**Apply Module Label Here**

Name\_\_\_\_\_

## Address

Postal Code \_\_\_\_\_

Please verify that preprinted label is for correct course and module.

Module Assignment  
Recorded\_\_\_\_\_

**Teacher's Comments:**

Teacher

## **ALBERTA CORRESPONDENCE SCHOOL**

### **MAILING INSTRUCTIONS FOR CORRESPONDENCE ASSIGNMENT BOOKLET**

#### **1. BEFORE MAILING YOUR ASSIGNMENT BOOKLET PLEASE SEE THAT:**

- (1) All assignments are completed. If not, explain why.
- (2) Your work has been re-read to ensure accuracy in spelling and details.
- (3) The booklet cover is filled out and the correct module label is attached.

#### **2. POSTAGE REGULATIONS**

Do **not** enclose letters with Assignments Booklets.

Send all letters in a separate envelope.

#### **3. POSTAGE RATES**

First Class

**Take your Assignment Booklet to the Post Office and have it weighed. Attach sufficient postage** and a green first-class sticker to the front of the envelope, and seal the envelope. Correspondence Assignment Booklets will travel faster if first-class postage is used.

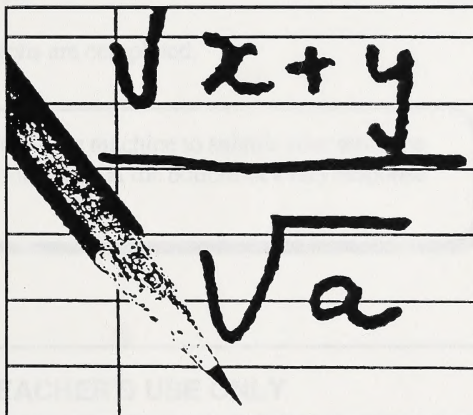
Try to mail each Assignment Booklet as soon as it has been completed.

When you register for correspondence courses, you are expected to send Assignment Booklets for correction regularly. Do not send more than one Assignment Booklet in one subject at the same time.



# MATHEMATICS 33

## Powers and Radicals



Unit 1

## Assignment Booklet



**Distance  
Learning**

**Alberta**  
EDUCATION

Mathematics 33  
Assignment Booklet  
Unit 1  
Problem Solving  
Alberta Distance Learning Centre  
ISBN No. 0-7741-0105-9

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Your mark on this unit will be determined by how well you answer the questions in this booklet.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate topic.

The three topics that you studied in your unit are covered in this assignment booklet. The total value of these topics is 100 marks. Each topic is divided into several questions. The value of each question is stated in the left margin.

Be sure to proofread each answer carefully.

Do not hand in this booklet until all questions are completed.

**Faxing?**

If you are using a facsimile machine to submit your work, be sure to fill in the information at the bottom of every response page.

**FOR TEACHER'S USE ONLY****Summary**

	Total Possible Marks	Your Mark
Topic 1	30	
Topic 2	38	
Topic 3	32	
	100	

**Teacher's Comments**

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**Topic 1: Changing the Form of a Radical and Adding and Subtracting Radicals**

1. Change each of the following to a mixed radical.

a.  $\sqrt{45}$

b.  $\sqrt{300}$

c.  $\sqrt{63}$

2. Change each of the following to an entire radical.

a.  $5\sqrt{3}$

b.  $15\sqrt{5}$

c.  $12\sqrt{2}$

3. Add each of the following. Express the sum in simplest form.

a.  $3\sqrt{2} + 5\sqrt{2} + 2\sqrt{2}$

b.  $3\sqrt{5} + \sqrt{40} + 2\sqrt{80}$

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_





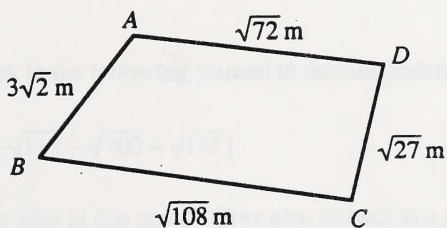


④

c.  $\sqrt{12} + \sqrt{75} + 2\sqrt{48} + 10\sqrt{3}$

⑤

- d. Find the perimeter for the quadrilateral shown. Express your answer in simplest form.



Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_



4. Simplify each of the following by performing the operations specified.

②

a.  $4\sqrt{2} - 3\sqrt{2} + 5\sqrt{2}$

③

b.  $\sqrt{20} - 6\sqrt{5} + \sqrt{45}$

⑤

c. A cashier took in the following amount in the first five minutes of business:

$$\$(\sqrt{28} + \sqrt{112} - \sqrt{700} + \sqrt{175})$$

What was the total at this point? Give your answer as a simplified radical.

**Topic 1**

\_\_\_\_\_ marks

Name of Student _____	Student I.D. # _____
Name of School _____	Date _____





**Topic 2: Multiplying and Dividing Radicals**

1. Find the products for each of the following. Express each answer in simplest form.

②

a.  $2\sqrt{2} \times 5\sqrt{3}$

②

b.  $\sqrt{3} \times \sqrt{8} \times \sqrt{2}$

③

c.  $\sqrt{3}(1+2\sqrt{3})$

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

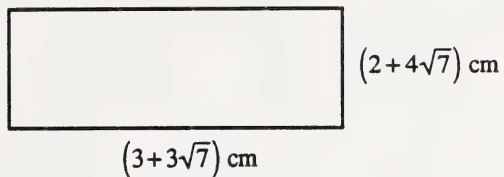
Date \_\_\_\_\_





④

- d. Find the area of the rectangle shown. Express your answer in simplest form.



④

- e. Find the area of a square whose side measures  $(2\sqrt{5} - \sqrt{3}) \text{ cm}$ .

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_



2. Find the quotient for each of the following. Express your answers in simplest form.

②

a.  $\frac{16\sqrt{10}}{8\sqrt{2}}$

②

b.  $\frac{9\sqrt{30}}{27\sqrt{10}}$

③

c.  $\frac{\sqrt{98}}{14}$

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_





3. Simplify each of the following by rationalizing the denominator. Express your answers in simplest form.

②

a.  $\frac{3\sqrt{7}}{\sqrt{3}}$

②

b.  $\frac{16}{3\sqrt{5}}$

③

c.  $\frac{\sqrt{3} + \sqrt{2}}{\sqrt{5}}$

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_





④

d.  $\frac{4\sqrt{6} + 4\sqrt{3}}{3\sqrt{6}}$

⑤

- e. The area of a rectangle is
- $(15 + 3\sqrt{2}) \text{ cm}^2$
- . If the length is
- $3\sqrt{6} \text{ cm}$
- , what is the width?

**Topic 2**

\_\_\_\_\_ marks

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_



**Topic 3: Solving and Applying Radical Equations**

1. Solve each of the following radical equations. Check all solutions and identify any extraneous roots.

③

a.  $\sqrt{2x} - 3 = 3$

④

b.  $\sqrt{x+6} - 3 = 1$

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_





⑤

c.  $-3\sqrt{2x+1}+5=-4$

⑤

d.  $-20+6\sqrt{2x+17}=-2$

Name of Student \_\_\_\_\_

Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_

Date \_\_\_\_\_



5

e.  $3 + \sqrt{x-2} = x-1$

Name of Student _____	Student I.D. # _____
Name of School _____	Date _____





5

2. Solve and verify.

Sonia was told that she would be allowed to join the track and field team at her school if she could solve the following problem:

The square root of one less than twice a number is multiplied by 4. When 3 is subtracted from this amount, the result is 9. Find the number.

Name of Student \_\_\_\_\_ Student I.D. # \_\_\_\_\_  
Name of School \_\_\_\_\_ Date \_\_\_\_\_



5

3. The following two conditions for a certain number are equal:

- the square root of the sum of a number squared and 9
- the number doubled and then decreased by 3

Find the number.

**Topic 3**

\_\_\_\_\_ marks

Name of Student \_\_\_\_\_ Student I.D. # \_\_\_\_\_

Name of School \_\_\_\_\_ Date \_\_\_\_\_









L.R.D.C.  
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Mathematics 33

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